

with the glowing statistics of such optimists as Williams, nevertheless advocate its use. We believe that every case of bowel obstruction and peritonitis which shows toxemia should receive anti-gas gangrene serum.

The following two cases were treated in our wards at the San Francisco Hospital. The first was an infection of the operated wound with a pure culture of *B. welchii* following enterotomy; the second, a peritonitis and polymicrobial wound infection following enterostomy, the outstanding finding being the presence of anaerobes which produced excessive gas and gangrene in the anterior abdominal wall.

REPORT OF CASES

CASE 1.—December 4, 1929. V. C., No. 116934, female, age fifty-four.

Condition on Examination.—Bowel obstruction complete. Symptoms began seventy-two hours before entrance to the hospital.

Operation.—Adhesion that completely obstructed ileum four feet from ileocecal valve was released. Bowel was completely drained after the method described by Halden. Opening in bowel was closed, and laparotomy wound closed without drainage. Forty-eight hours later wound opened; the subcutaneous tissues were edematous and contained bubbles of gas. Marked evidence of general toxemia was present, but no gangrene. Entire rectus muscle was found liquefied into a chocolate-like solution. Hematogenous jaundice was marked.

Treatment.—One hundred cubic centimeters of anaerobic antitoxin in four hundred cubic centimeters of 10 per cent glucose was given intravenously. One hundred cubic centimeters anaerobic antitoxin was injected subcutaneously and intramuscularly around the involved area.

Improvement in general condition was almost immediate. Jaundice cleared rapidly. Twenty-four hours later, one hundred cubic centimeters of antitoxin was given intravenously. Patient recovered slowly, and was discharged as well on February 15, 1929.

Cultures showed pure growth of *B. welchii*.

CASE 2.—December 1, 1928. No. 116830, female, age fifty-five.

Condition on Examination.—Strangulated postoperative ventral hernia. Symptoms began ninety-six hours before entering hospital.

Operation.—Adhesions were freed and enterostomy was performed in loop proximal to the loop incarcerated in hernia sac. The intestine was not gangrenous.

Twelve to five, patient's bowels moved; there was no vomiting and fluids were retained by mouth.

Twelve to seven, skin discolored in the region of the wound; crepitation extending several centimeters wide of incision. Opened wound wide of the limits of gangrene present and excised the necrotic tissue. Dakin tubes were inserted and the excavation was flooded with Dakin's solution.

One hundred cubic centimeters of anaerobic antitoxin and four hundred cubic centimeters of 10 per cent solution of glucose were given intravenously. The general condition showed a definite improvement after the debridement and the administration of antitoxin.

On December 9 the patient expired.

Cultures contained *B. welchii* and other anaerobic bacteria and colon bacilli.

Autopsy Report.—Gangrene of operative wound; general peritonitis, acute; pelvic peritonitis, chronic; salpingitis, chronic.

We feel the anaerobic antitoxin was a valuable aid in the treatment of these two patients and that it should be more generally used in any toxemia resulting from bowel obstruction or peritonitis.

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THE LURE OF MEDICAL HISTORY

HIPPOCRATIC MEDICINE*

PART II

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THE ASKLEPIAD

UNDER these circumstances it could not be expected that scientific medicine should hold the field undisputed. Theurgic medicine, the Christian Science of that day, flourished, so much so, that the Asklepiad Brotherhood, in whose ranks the Hippocratic tradition was born and nurtured, had its origin indirectly from temple healing. So many were the patients that flocked to the shrines of the god of healing, Asclepius, that there was an overflow of sick people who had to be treated. Furthermore the priests accepted only those they had invited for treatment, so that at Epidaurus, at Cos, or at Tricca, and a score of other temple towns, there were always many sufferers in need of aid. There arose then this group of lay physicians bound in a brotherhood, called the Asklepiad, who devoted themselves to the care of such invalids. So successful were they, and so divorced from temple practice, that through them developed a truly scientific attitude toward the study and treatment of disease. Although some students of the subject are unconvinced, it seems undoubted that, in this way, unattached to the temple, but dependent on it for patients, the Asklepiad Brotherhood rose and flourished. So successful was it that it produced great masters of the art, like Hippocrates, and great schools like those at Cos and Cnidus. So entirely successful that, based on the tradition it established, there arose later on, the still greater schools of Alexandria, Pergamos, Smyrna, and a host of others, and there emerged such famed physicians as Herophilus, Erasistratus in Alexandria, and Galen in Pergamon and Rome.

The temples of Asclepius were always placed in beautiful situations, charming and salubrious, where sparkling springs rose near pleasant wooded hillsides. These temples had all those attributes of restful attractiveness that lie at the root of the popularity enjoyed by the European spas. People flocked to the temples certain of the healing power of the god and, almost invariably, they went away refreshed and heartened, if not healed. Many times they, as do some of our friends of today, played one power against another, and resorted to the practitioners of lay medicine on their way to or from their treatment at the hands of the servants of the divinity, the temple priests.

One feature of interest to the modern physician was the abaton. This was a lofty outdoor sleeping porch where the patients, lying in their beds day and night, awaited the pleasure of the god. It was understood that the deity would visit them

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as they slept, revealing himself as they dreamed. He always did—his priests saw to that—and a few days, or hours later, the patient left the abaton.

Of course, the treated one made proper returns in the shape of donations of money and of various small animals or birds, sacrificed on the altars of the temple; and these had to be purchased at a price from the priests. Another type of offering was the so-called votive gifts; these were terracotta casts (sometimes they were fabricated of ivory or precious metals) of the afflicted parts. These were left at the temples, much as patent medicine testimonials are written by the grateful today. Sometimes they were placed before the altar of the god preceding a cure, in order that he might not, in his hurry and the stress of overwork, forget the part that the supplicant wanted healed. These votive offerings make a fascinating collection of primitive pathology. To a gathering like this those votives, representing diseased pulmonary organs and various manifestations of bone tuberculosis, might be of great interest. There are many of them to be found in various European museums and some also are depicted in the literature of medical history.

SOME EXCERPTS FROM ANCIENT TEMPLE RECORDS

In his history of medicine, Singer deals interestingly with the matter of the temple methods and quotes the records of several of their reputed cures—among the most interesting, that of the man who had an abdominal abscess. "He saw a vision and thought that the god ordered the slaves who accompanied him to lift him up and hold him so that his abdomen could be cut open. The man tried to get away, but his slaves caught him and bound him. So Asklepius cut him open, rid him of the abscess, then stitched him up again, releasing him from his bonds. Straightway he departed cured, and the floor of the abaton was covered with blood."

Another such record runs:

"A certain Teucer, afflicted with epilepsy, went to the Asclepieion at Pergamus and besought the god to heal him. Asklepius appeared, as usual, in a dream, and asked whether he would like another disease instead. Teucer replied this was not his most earnest desire—in fact, he would rather be healed entirely; but if that was impossible, and the other disease less troublesome, he would accept it. The god replied that it was less troublesome, and was also the best cure for his complaint. Thereupon he was attacked by a quartan fever, but was delivered from his epilepsy."

This suggests that the influence of malarial fever in mitigating convulsive seizures was not unknown as long ago as 500 B. C.

The entire freedom of the lay medicine of the Hippocratic tradition from such supernatural influences is clearly demonstrated by the writer of the book called "Concerning the Sacred Disease" who discourses as follows:

"I am about to discuss the disease called 'sacred.' It is not, in my opinion, any more divine or more sacred than other diseases, but has a natural cause and its supposed divine origin is due to men's inexperience and to their wonder at its peculiar char-

acter. Now while men continue to believe in its divine origin because they are at a loss to understand it, they really disprove its divinity by the facile method of healing which they adopt, consisting, as it does, of purifications and incantations. But if it is to be considered divine just because it is wonderful, there will be not one sacred disease, but many, for I will show that other diseases are no less wonderful and portentous. . . ."

The contrast between the methods of these temples and the practice of the Hippocratic physicians is nowhere better illustrated than in the paragraphs of the Corpus dedicated to "Operative Requisites in the Surgery," which reads:

"The patient, the operator, assistants, their number; the light, where and how placed; the instruments which he uses, how and when; the patient's person and the apparatus. The operator, whether seated or standing, should be placed conveniently to the part being operated upon and to the light. Now there are two kinds of light, the ordinary and the artificial, and while the ordinary is not in our power, the artificial is in our power. Each may be used in two ways, as direct light and as oblique light. Oblique light is rarely used. With direct light, so far as available and beneficial, turn the part operated upon toward the brightest light, except such parts as should be unexposed and are indecent to look at; thus, while the part operated upon faces the light, the surgeon faces the part, but not so as to overshadow it. For the operator will in this way get a good view. . . . The nails of the operator neither to exceed nor come short of the finger tips. Practice using the finger ends. Practice all operations with each hand and with both together, your object being to attain agility, speed, painlessness, elegance and readiness. Let those who look after the patient present the part for operation as you want it, and hold fast the rest of the body so as to be all steady, keeping silence and obeying their superior. . . ."

HIPPOCRATES

Of Hippocrates himself, we know little—the time of his birth, 460 B. C., the fact that Plato referred to him with approval and that Aristotle acclaimed him "The Great"; that, within a few years, legend had enshrined him in an immortality of the supernatural. Bees building their hives on his grave produced a honey, it is said, which was a panacea for aphthous stomatitis. Miraculously he stayed the plague in Athens, although reliable historians tell us he never was in that city. We do know that, of the writings attributed to him, some were written before he was born, many after his death, and only a few could possibly have been from his own hand. The works attributed to Hippocrates constituted, in fact, a library gathered at one of the great schools of medicine which, after Hippocrates' death, carried on the high Asklepiad tradition at Alexandria, Pergamon, Smyrna, and a number of other centers in Asia Minor. Asia Minor and Egypt, we must remember, in the third and second century B. C., were the richest parts of the world, alive with commercial, artistic and intellectual activity.

THE HIPPOCRATIC WRITINGS

The Hippocratic writings most probably were from Pergamon, which was the city nearest to the ancient school of Cos, whence came Hippocrates himself.

Jones analyzes the Books of the Corpus as falling into six categories:

1. Texts for physicians.
2. Texts for laymen.
3. Prospects for or reports on research.
4. Lectures or essays, some given to students of medicine, some to laymen.
5. Essays by philosophic minded laymen interested enough in medicine to want to philosophize about it.
6. Notebooks or scrap books—a medley.

Three hundred years elapsed between the origins of the earliest and of the latest books, which divided into a pre-Hippocratic and a Hippocratic group.

A reading of the Hippocratic books makes it quite evident that the great mass of diseases, other than surgical, which came to the Greek physician for treatment, were diseases of long duration. The commonest were epidemics of various types, malaria, fevers of the typhoid group, epileptic seizures and phthisis, so named because of its most striking symptoms, wasting. Even today, with all our instruments and all our organized efforts to make an early diagnosis of pulmonary tuberculosis, we fail very often. Is it, then, any wonder that the Greeks, two thousand years ago, under the social and scientific circumstances, knew the disease imperfectly and only in its more developed stages? Yet, what they did know remained practically all that was known down to the days of Laennec, except for a little that was added in the fourth century A. D. by Aretaeus the Cappadocian, who took empyema out of the category of pulmonary phthisis and wrote illuminatingly of cavitation—ulcer he called it.

One of the most striking things in the Greek literature of the disease is the expressed belief in the influence of external surroundings as a factor in producing it.

The Hippocratic physician was keenly interested in prognosis—this for two reasons. As has been said, he had to sell scientific medicine to a skeptical and stiff-necked generation. His chance of success was greater if he could impress the sick man by recounting the various pains and discomforts that had followed his falling ill, and outline for him, with a fair degree of probability, what the future held in store; also it was to his advantage if he could foretell death or recovery with a reasonable approximation to accuracy. In the former case, he could clear his skirts of blame and in the latter, gain credit for good work accomplished. When it is considered that most of the Greek physicians were passing from town to town, and from city to city, strangers to those they served, the need for some impressive approach, such as accurate prognosis, becomes apparent.

The most famous Hippocratic passage taken from the book entitled "Prognostics" is an instruction in foretelling the approach of death. Thus it is written:

"You should observe thus in acute diseases: first, the countenance of the patient, if it be like those of persons in health, and especially if it be like itself, for

this is best of all. But the opposite are the worst, such as these: a sharp nose, hollow eyes, collapsed temples; the ears cold, contracted, and their lobes turned out; the skin about the forehead rough, stretched and parched; the colour of the face greenish, dusky, livid or leaden.

"If the countenance be such at the beginning of the disease, and if this cannot be accounted for by the symptoms, inquiry must be made whether the patient has been sleepless, whether his bowels have been very loose, or whether he has wanted food. If any of these be confessed, the danger is to be reckoned so far the less, and it will become obvious in a day and night whether or not the appearance came of these. But if no such cause exist and if the symptoms do not subside in this time, be it known for certain that the end is at hand."

THE HIPPOCRATIC TEACHING CONCERNING NATURE

The great underlying thought in the Hippocratic teaching was that nature tended to bring about a cure, and that the physician's duty was to intervene as little as possible, and then only to remove hindrances to the natural processes. The rôle that air plays in maintaining life was recognized, the breath was identified with the soul, and as the source of innate heat without which life and thought were impossible. The idea that Aristotle later expressed, of "fire without flame or spark," runs throughout the Hippocratic teachings. In the book "Concerning Ancient Medicine," which there is good reason to believe is from Hippocrates' own hand, it is written:

"Medicine has long had all its means to hand, and has discovered both a principle and a method through which the discoveries made during a long period are many and excellent, while full discovery will be made, if the inquirer be competent, conduct his researches with knowledge of the discoveries already made, and make them his starting point." The writer goes on to make the following criticism: "For most physicians seem to me to be in the same case as bad pilots; the mistakes of the latter are unnoticed so long as they are steering in a calm, but when a great storm overtakes them with a violent gale, all men realize clearly then that it is their ignorance and blundering which have lost the ship. So also when bad physicians, who comprise the great majority, treat men who are suffering from no serious complaint, so that the greatest blunders would not affect them seriously—such illnesses occur very often, being far more common than serious disease—they are not shown up in their true colours to laymen if their errors are confined to such cases; but when they meet with a severe, violent and dangerous illness, then it is that their errors and want of skill are manifest to all."

The same clear-sighted search for the practical is manifest when the author writes:

"I declare, however, that we ought not to reject the ancient art on the ground that its method of inquiry is faulty, just because it has not attained exactness in every detail, but much rather, because it has been able by reasoning to rise from deep ignorance to approximately perfect accuracy, I think we ought to admire the discoveries as the work, not of chance, but of inquiry rightly and correctly conducted." "I also hold that clear knowledge about natural science can be acquired from medicine and from no other source, and that one can attain this knowledge when medicine itself has been properly comprehended, but till then it is quite impossible—I mean to possess this information—what man is—by what causes he is made, and similar points accurately. I think a physician must know, and be at great pains to know about natural science, if he is going to perform aught of his duty, what man is in relation to foods and drinks and

to habits generally, and what will be the effects of each on each individual. It is not sufficient to learn simply that cheese is a bad food, as it gives a pain to one who eats a surfeit of it; we must know what the pain is, the reason for it, and which constituent of man is harmfully affected."

In those days the errors of approach seem to have been much the same as today, for the writer says:

"I am aware that most physicians, like laymen, if the patient has done anything unusual the day of the disturbance—taken a bath or a walk, or eaten strange food, these things being all beneficial—nevertheless assign the cause to one of them, and while ignorant of the real cause, stop what may have been of the greatest value."

Again there is insistence on the need for reality as the guiding principle of practice, as expressed in the following lines:

"Time is that wherein there is opportunity, and opportunity is that wherein there is no great time. Healing is a matter of time, but it is sometimes also a matter of opportunity. However, knowing this, one must attend in medical practice not primarily to plausible theories, but to experience combined with reason."

The likeness of the thinking that these ancients did about structures and function to our own, is illustrated in many other places in "Ancient Medicine"; by this passage in particular:

"I hold that it is also necessary to know which diseased states arise from powers and which from structures. What I mean is, roughly, that a 'power' is an intensity and strength of the humours, while 'structures' are the conformations to be found in the human body. . . ."

The word "powers" really is used to mean what we call function. Of course, as Littré, the greatest modern student of Hippocrates, said:

"Things were in a rudimentary state, that is, so far as background and the theory went; but not on the side of observed fact and of deduction from observation. In the matter of treatment, especially of surgical treatment, there are records in the Hippocratic writings that the best modern physicians would have no need to be ashamed of. For instance: 'The aged endure fasting more easily; next adults; next young persons, and least of all children, and especially such as are the most lively.' Again: 'Growing bodies have the most innate heat; they therefore require the most nourishment, and if they have it not, they waste.'"

If fever persisted fifteen days after the onset of a pneumonia the Hippocrateans presumed the presence of pus, and proceeded to evacuate it by incision with knife or cautery. Their advice shows that they knew something of immediate auscultation. The physician is instructed to shake the patient by the shoulders, placing his ear to the patient's chest in order to determine by the location of the sound on which side the fluid is. (Also, the wash leather-like creak of dry pleurisy is described.) If no sound is heard, one is to choose for incision the point where there is most pain; or, failing such a localization of pain, a procedure based on the presence of a localized increase in temperature is advised as follows:

"Cover and wrap the thorax in a thin linen cloth that has been wrung out in a warm suspension of potter's clay and, on the side that cools, cut or cauterize as near as possible to the diaphragm, taking care not to wound it."

That they knew of appendicitis, perityphlitis and peritonitis, is clear to those who read the book called "Prognostics," which says:

"It is best for the hypochondrium to be free from pain, soft and with the right and left sides even; but should it be inflamed, painful, distended, or should it have the right side uneven with the left—all these signs are warnings." "A swelling in the hypochondrium that is hard and painful is the worse, if it extends all over the hypochondrium; should it be on one side only it is less dangerous on the left. Such swellings at the commencement indicate that soon there will be a danger of death, but should the fever continue for more than twenty days without the swelling subsiding, it turns to suppuration." . . . "But whenever the swellings in these regions are protracted one must suspect suppurations. Collection of pus there ought to be judged of thus. Such of them as turn outward are most favorable when they are small, and bend as far as possible outward, and come to a point; the worst are those which are large and broad, sloping least to a point. Such as break inwards are most favourable when they are not communicated at all to the outside, but do not project and are painless, while all the outside appears of one uniform colour. The pus is most favourable that is white and smooth, uniform and least evil smelling. Pus of the opposite character is the worst." . . .

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(Part III of this paper will be printed in the May issue.)

CLINICAL NOTES AND CASE REPORTS

ECTOPIC VENTRICULAR TACHYCARDIA

WITH PROBABLE ACUTE CORONARY THROMBOSIS,
AND HAVING A VERY UNUSUAL ELECTRO-
CARDIOGRAPHIC TRACING

REPORT OF CASE

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MRS. T. S., age fifty-three years, had been a very well woman until forty-four years of age. At this time she was operated upon for a tumor of the uterus. Patient suffered an attack of bronchopneumonia twice in the same year following the surgery. There was no other infectious history. After this experience, trouble with her heart increased until the time of her death, which occurred thirty-six hours after my consultation.

My physical examination revealed the following essentials:

The temperature was 100 to 104 degrees, pulse 90 to 120, blood pressure 150-90, having suddenly dropped from 200-110 the day before.

Cyanosis, dyspnea, edema, and coughing were extreme, there having been a sudden increase of dyspnea coincidentally with the drop in blood pressure the day before.

There were no thrills. The liver was five centimeters below the costal margin. The left leg was larger than the right and very sore and painful, especially below the knee.

The left border of the heart was fifteen centimeters from the midsternal line. The right border was not located. There was marked dullness in both bases and along the spine.

The rate was 120. The sounds were very hard to distinguish and tick-tack in character. There were no murmurs. There were heavy râles in both lungs.

Laboratory Findings.—The urine showed a specific gravity of 1.018; PH 5.8. Hyaline and granular casts were both present, with albumin 1.25 per cent.

There was a leukocytosis of 21,700, with polymorphonuclears 88 per cent. Wassermann and blood culture were both negative.